

5    What is claimed is:

1.       A method of generating an On-Line Analytical Processing (OLAP) query,  
comprising:
  - providing a query object capable of supporting a plurality of OLAP servers,
  - 10   each of the OLAP servers using a different structured query format;
  - determining an OLAP server from among the plurality of OLAP servers for  
which the query will be executed based upon a property of the query object; and
  - processing the query object to generate a query statement using the structured  
query format corresponding to the OLAP server determined.
- 15   2.       The method of claim 1, wherein the OLAP server is determined from a group  
of OLAP servers including Microsoft Analysis Services OLAP server and Hyperion  
Essbase™ OLAP server.
- 20   3.       The method of claim 2, wherein the query statement is generated using the  
Multi-Dimensional Expression (MDX) query format when the property of the query  
object indicates Microsoft Analysis Services OLAP server.
4.       The method of claim 3, wherein processing the query object includes
- 25   generating a *select* clause and a *from* clause from the query object, and combining  
the *select* clause and the *from* clause to generate the query statement.
5.       The method of claim 3, wherein processing the query object includes  
generating a *select* clause, a *from* clause, and a *with* clause from the query object, and
- 30   combining the *with*, *select* and *from* clauses to generate the query statement.

- 5 6. The method of claim 3, wherein processing the query object includes  
generating a *select* clause, a *from* clause, and a *where* clause from the query object,  
and combining the *select*, *from* and *where* clauses to generate the query statement.
7. The method of claim 3, wherein processing the query object includes  
10 generating a *select* clause, a *from* clause, and an *order by* clause from the query  
object, and combining the *select*, *from* and *order by* clauses to generate the query  
statement.
8. The method of claim 2, wherein the query statement is generated using the  
15 Report Scripts (RS) query format when the property of the query object indicates  
Hyperion Essbase™ OLAP server.
9. The method of claim 8, wherein processing the query object includes  
generating a *header* specification, an *axis* specification and an *execute* specification  
20 from the query object, and combining the *header*, *axis* and *execute* specifications.
10. The method of claim 8, wherein processing the query object includes  
generating a *header* specification, an *axis* specification, a *member* specification, and  
an *execute* specification from the query object, and combining the *header*, *axis*,  
25 *member* and *execute* specifications to generate the query statement.
11. The method of claim 8, wherein processing the query object includes  
generating a *header* specification, an *axis* specification, an *expression* specification,  
and an *execute* specification from the query object, and combining the *header*, *axis*,  
30 *expression* and *execute* specifications to generate the query statement.

5 12. The method of claim 1, wherein the query object property supports at least three OLAP servers, each of the OLAP servers using a different structured query format.

13. An apparatus for generating an OLAP query using a query object capable of  
10 supporting a plurality of OLAP servers, each of the OLAP servers using a different structured query format, the apparatus comprising:

means for determining, based upon a property of the query object, an OLAP server from among the plurality of OLAP servers; and

15 means for processing the query object to generate a query statement using the structured query format corresponding to the OLAP server determined.

14. The apparatus of claim 13, wherein the query object is capable of supporting the Microsoft Analysis Services OLAP server and Hyperion Essbase™ OLAP server, and the means for processing generates an MDX query statement and an RS query  
20 statement when the property indicates that the OLAP server is a Microsoft Analysis Services OLAP server and an Hyperion Essbase™ OLAP server, respectively.

15. The apparatus of claim 13, wherein the query object is capable of supporting at least three OLAP servers which each uses a different structured query format, and  
25 the means for processing generates the query statement using one of the at least three formats.

16. An OLAP query generation engine, comprising:  
a query object model, the query object model including a data structure which  
30 models an OLAP query; and  
a programming interface for generating an OLAP query statement from the query object model according to a structured query format specified by the query object model.

5 17. The engine of claim 16, wherein the data structure models the OLAP query in  
an abstract form that is compatible with a plurality of different OLAP structured  
query formats.

18. The engine of claim 16, wherein the data structure models the OLAP query in  
10 a form different from the implementation of underlying OLAP servers.

19. The engine of claim 16, wherein the programming interface is also for  
maintaining the OLAP query statement.

15 20. The engine of claim 16, wherein the programming interface is also for  
executing the OLAP query statement.

21. The engine of claim 16, wherein the query object model is capable of  
specifying the MDX and the RS query formats, and the programming interface  
20 generates an MDX query statement and an RS query statement when the query object  
model specifies the MDX query format and the RS query format, respectively.

22. The engine of claim 16, wherein the query object model is capable of  
specifying first, second and third structured query formats, and the programming  
25 interface generates the query statement using the first, second and third formats when  
the query object model specifies the first, second and third structured query formats,  
respectively.

23. An OLAP query object model, comprising:  
30 a query object which defines an OLAP query in abstract form; and  
a root object including methods for transforming the query object into an  
OLAP query statement according to a structured query format specified by the query  
object.

5 24. The model of claim 23, wherein the query object is capable of specifying the MDX query format and the RS query format, and the root object includes methods for generating an MDX query statement and an RS query statement when the query object specifies the MDX query format and the RS query format, respectively.

10 25. The model of claim 23, wherein the query object is capable of specifying first, second and third structured query formats, and the root object includes methods for generating the query statement using the first, second and third structured query formats when the query object specifies the first, second and third structured query formats, respectively.

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26. An OLAP query generation engine for use with an OLAP query and reporting application that supports a first OLAP server using a first structured query format and supports a second OLAP server using a second structured query format, the engine comprising:

20 an object model including a data structure that models an OLAP query; and a programming interface for generating an OLAP query statement according to the first structured query format when the first structured query format is specified by the object model and according to the second structured query format when the second structured query format is specified.

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27. The engine of claim 26, wherein the query and reporting application supports a Microsoft Analysis Services OLAP server using the MDX query format and an Hyperion Essbase™ OLAP server using the RS query format, and the programming interface generates an MDX query statement and an RS query statement when the  
30 object model specifies the MDX query format and the RS query format, respectively.

28. The engine of claim 26, wherein the query and reporting application supports first, second and third OLAP servers using first, second and third structured query

5 formats, and the programming interface generates the query statement using the first,  
second and third structured query formats when the first, second and third structured  
query formats are specified.

29. A method of generating an OLAP query using a query object capable of  
10 supporting a plurality of OLAP servers, each of the OLAP servers using a different  
structured query format, the method comprising:  
determining, based upon a property of the query object, an OLAP server from  
among the plurality of OLAP servers; and  
processing the query object to generate a query statement using the structured  
15 query format corresponding to the OLAP server determined.

30. The method of claim 29, wherein the query object supports the Microsoft  
Analysis Services OLAP server and Hyperion Essbase™ OLAP server, and the  
processing generates an MDX query statement and an RS query statement when the  
20 property indicates that the OLAP server is a Microsoft Analysis Services OLAP  
server and an Hyperion Essbase™ OLAP server, respectively.

31. The method of claim 29, wherein the query object supports at least three  
OLAP servers which each uses a different structured query format, and the  
25 processing generates the query statement using one of the at least three formats.